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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,557	01/06/2006	Robert A. Wills	13652.0001USW1	5059
23552 7590 05/14/2009 MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903				
EXAMINER				
DRODGE, JOSEPH W				
ART UNIT		PAPER NUMBER		
1797				
MAIL DATE		DELIVERY MODE		
05/14/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/538,557

**Applicant(s)**

WILLS, ROBERT A.

**Examiner**

Joseph W. Drodge

**Art Unit**

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-17 is/are rejected.
- 7) ☒ Claim(s) 8 AND 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date 03/23/2009

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-7 and 9-17 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-12 of copending Application No. 11/247,949. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims and claims of co-pending '949 commonly recite common processes of drying solids initially wet with water within interstitial spaces, by exchanging a first solvent with the water followed by exchanging a 2nd solvent with the 1st solvent.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-7 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teich et al patent 6,438,867 in view of DeGroot et al patent 7,053,036 and/or Gray patent 6,743,300 and/or Ziegler et al patent 6,017,505.

For claims 1 and 13, Teich et al disclose drying solids that are initially wet with water in the interstitial spaces between the solids, by displacing the water with a 1<sup>st</sup> exchanging solvent that is water-miscible with a heat of vaporization lower than water, such as alcohol, followed by displacing with a 2<sup>nd</sup> drying solvent having a lower heat of vaporization lower than the alcohol, such as ether or other diverse organic drying fluids (see especially column 3, lines 14-29 and 45-67; column 4, lines 25-35 and column 7, lines 25-30). Column 4, lines 27-33 clarify that the 1<sup>st</sup> exchanging solvent may be an alcohol. Column 4, lines 44-63 clarify that ethers are among the optional 2<sup>nd</sup> drying solvents that may be employed. **The initial water-wet solids are**

comprised in an aqueous gel-containing feed stream that is fed in counter-current through a moving bed (column 3, lines 30-39). At column 4, lines 25-34 it is stated that alcohol is miscible for the water as a 1st drying fluid and may be in turn exchanged for an even more suitable 2nd drying fluid.

The claims differ in explicit recitation of the 2<sup>nd</sup> fluid having an even lower heat of vaporization than the 1st drying fluid (alcohol). Alcohol (1st drying fluid) is known to have a lower heat of vaporization than the water. It is stated at column 4, lines 60-61 that mixtures of fluids may be employed, at lines 64-67 that halogenated hydrocarbons may be employed but are subject to environmental and choice of material concerns and at column 4, line 67-column 5, line 2 that materials with high critical temperatures, hence high heats of vaporization, are avoided.

DeGroot et al teach advantages of employing of the halogenated hydrocarbon of n-propyl bromide as a drying solvent of being non-flammable, non-corrosive and having a high evaporation rate thus ensuring rapid drying, and concerning drying of a wide range of substrates including miniaturized components that are porous with small cracks ,crevices and holes (column 6, lines 23-32 and column 7, lines 44-58). At column 7, lines 54-55 it is stated that the drying solvent has a very high evaporation rate and ensures rapid drying of materials. At column 7, lines 35-41 this particular chemical is taught as being environmentally desirable with respect to the Clean Air act and OSHA regulations and that it does not cause cancer.

Gray also teaches use of n-propyl bromide as a 2nd solvent employed in 2-step processes for cleaning and drying composite materials (column 1, lines 12-17; column 4, lines 44-60) and suggest that such 2<sup>nd</sup> solvent is among solvents that are readily recoverable

**(column 1, lines 41-45). It would have been obvious to one of ordinary skill in the art to have utilized a drying fluid material or mixture of materials comprising n-propyl bromide [specifically required in claims 5 and 6] as the (or one of the) 2nd drying solvent in the Teich et al process, due to it's advantages of being environmentally desirable, non-flammable, non-corrosive and having a high evaporation rate and/or due it's being readily recoverable.**

For dependent claims: for claim 2, and also independent claim 13; Teich et al also disclose a subsequent heating step to remove residual fluids and solvents (column 7, lines 45-48); for claims 3 and 4, Teich disclose use of methanol or ethanol (column 4, line 53); for claim 7, use of ether is found at column 4, lines 54 and 61-63 where environmental conditions permit; for claims 11-14, column 4, lines 27-33 clarifies that the 1<sup>st</sup> exchanging solvent may be an alcohol and column 4, lines 44-63 clarifies that ethers are among the optional 2nd drying solvents that may be employed, obtaining of pure alcohol as the solvent employed for the exchanging or drying solvent is inferred by column 4, lines 30-32 that states the water originally present may be exchanged wholly for alcohol rather than by an alcohol/water mixture as in column 5, lines 35-38.

Claims 9-12 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teich et al patent 6,438,867 in view of DeGroot et al patent 7,053,036 and/or Gray patent 6,743,300 as applied to claims 1-8 and 13 above, and in view of Ziegler et al patent 6,017,505.

These claims also appear to differ in requiring solvent recovery and recycling as relatively pure products. Gray teaches recovery of alcohol and bromide solvents employed in

cleaning and drying processes (column 1, lines 41-45; column 2, lines 22-26; column 4, lines 41-60).

It is now also noted that Teich et al concern drying of silica gels or other gels (column 3, lines 43-54). Ziegler concerns drying of aerogels so as to replace water with alcohols and other water-miscible solvents and other solvent mixtures, followed by solvent recovery and re-cycling (column 1, lines 10-36 and column 4, lines 25-53 with column 6, lines 10-18 concerning recycling of alcohol solvent by distillation). It would have been also obvious to recover the solvents employed in Teich et al as taught by Gray and Ziegler, to facilitate continuous system processing on an industrial scale and for purposes of material conservation. Regarding percentage of purity of solvents recovered, Gray teaches that they are restored to "their starting compositions" (see column 2, line 26).

For claim 16, use of distillation to recover displacing/drying solvents is taught in Gray at column 5, lines 10-39.

For claims 11-15 and 17, one or more solvent extraction exchanging/drying solvent recovery steps is suggested in Gray at column 8, lines 29-45.

Claims 8 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 8 would distinguish in view of recitation of the second drying solvent being MTBE or ETBE.

Claim 18 would distinguish in view of recitation of the material having interstitial spaces initially filled with water being solids from a beer stream.

Applicant's arguments filed on 3/23/2009 have been fully considered but they are not persuasive. It is argued that Teich et al teaches a moving bed application containing particles rather than a fluid feed stream and fail to suggest drying of interstitial spaces between spaces of solids. However, the moving particle bed of Teich qualifies as a form of moving stream that proceeds from a 1st arbitrary feed point to a 2nd arbitrary destination point; the water in such stream is necessarily between the particles of the moving bed or stream. Column 3, line 24 state that water is also in the particles, hence 'interstitial'. Column 5, lines 39-50 state of Teich state that the stream of particles circulates in definite directions by use of a pump.

It is next argued that Teich only teach a single fluid that is suitable for drying, thus does not teach more than one drying fluid or solvent. It is submitted in summary, that Teich at column 3, lines 14-27 and column 7, lines 25-30, discloses a step c) of "exchanging" the water in the particles and water of the solvent or wash stream containing the particles for a 1st "fluid" and then in step d) drying the fluid-containing particle stream, with such drying being comprising contact with a stream containing drying solvent fluid (claim 8 at column 12 of Teich). Since the exchanging 1<sup>st</sup> fluid results in exchange removal of water, this defines an additional 'drying' step.

It is argued with respect to claim 13 that Teich does not suggest a heating step. Heating is explicitly disclosed at column 7, lines 45-48 of Teich.

Any inquiry concerning this communication or earlier communications from



the examiner should be directed to Joseph Drodge at his direct government telephone number of 571-272-1140. The examiner can normally be reached on Monday-Friday from approximately 8:30 AM to 12:30 PM and 2:00 PM to 6:00 PM.

Additionally, the examiner's supervisor, Duane Smith, of Technology Center Unit 1797, can be reached at 571-272-1166.

The formal facsimile phone number, for official, formal communications, for the examining group where this application is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or Public PAIR, and through Private PAIR only for unpublished applications. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JWD  
5/13/2009  
/Joseph W. Drodge/  
Primary Examiner, Art Unit 1797